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[0024]

However, it is necessary to meet many conditions such as the decimal number system, integer notation, and the like in order to create readily understandable coordinates. A code system which satisfies such conditions is disclosed (see JP-A-2000-181345).

DISCLOSURE OF THE INVENTION

[0025]

However, JP-A-2000-181345 does not sufficiently disclose about a method of utilizing a global mesh code (N-code), and a system is required for its proliferation.

[0026]

It is therefore an object of the present invention to provide a coordinate mutual conversion module which is capable of readily utilizing an N-code by converting between the N-code and a coordinate system that is selected from a group comprising the latitude/longitude of the new and old positioning system the coordinates and corresponding X, Y coordinates, respectively.

[0027]

Further, it is an object of the present invention to provide a geographical information system, a global positioning system, a portable terminal, an image pick-up apparatus, a navigation system, a navigation control system, an on-site shooting television camera, and a vehicle management system.

[0028]

The coordinate mutual conversion module of the present invention is a coordinate mutual conversion module for mutually converting a mesh code

for displaying a position by using a combination of a block number for a block, a unit number for a unit, and a mesh number for a mesh, wherein the globe is divided into six in the east-west direction along longitudes at intervals of 60 degrees, and divided into at least three in the south-north direction along

5 latitudes to define a plurality of numbered blocks, each of the blocks is divided into 100 in the east-west direction and in the south-north direction, respectively, to define a plurality of numbered units in a square shape, and each of the units is divided into 10^n in the east-west direction and in the north-south direction, respectively, to define a plurality of numbered meshes in a square shape, and

10 respective latitudes and longitudes of new positioning system coordinates and old positioning system coordinates, and coordinate values of X, Y coordinates corresponding to the new positioning system coordinates, and the old positioning system coordinates, respectively, and has input means for entering each of the latitude/longitude and the coordinate values, block number

15 selecting means for finding in which of the blocks each of the latitude/longitude and the coordinate values are located, unit number selecting means for finding in which of the units in the block found by the block number selecting means each of the latitude/longitude and the coordinate values are located, mesh number selecting means for finding in which of the meshes in the unit found by

20 the unit number selecting means each of the latitude/longitude and the coordinate values are located, output means for calculating and delivering the latitude/longitude, and the coordinate values corresponding to the position in the mesh code representation, home position setting means for identifying a position by omitting the unit number and entering only the mesh number when

25 data is entered, mesh code input means for entering the mesh code having a selected number of digits in accordance with an application from among the

block number, the unit number, and the mesh number, and mesh code output means for selecting and delivering a number of digits required in accordance with an application from among the mesh code composed of the block number, the unit number, and the mesh number.

5 [0029] (Deleted)

[0030] (Deleted)

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[0031] (Deleted)

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15 [0032]

The coordinate mutual conversion module of the present invention configured as described above can readily convert mutually the mesh code and the coordinate values of the X, Y coordinates based on the longitude/latitude of the new and old positioning system coordinates or the 19-coordinate system.

20 [0033]

When the new positioning system coordinates were announced, the Geographical Survey Institute provided TKY2JDG as a program for showing the relationship among the latitude/longitude of the old Japan positioning system, the latitude/longitude of the new positioning system coordinates, and
25 the X, Y coordinates based on the 19-coordinate system corresponding to both. The coordinate mutual conversion module of the present invention provides a

A television camera of the present invention is an on-site shooting television camera comprising the global positioning system of the present invention, which has direct input means for entering the current position of the television camera or a position of subject as a mesh code having a selected
5 number of digits, and has display means for displaying a mesh code for information on the position of the television camera acquired by the global positioning system, or for displaying a mesh code entered through the direct input means on a picked-up image.

[0055]

10 A vehicle management system of the present invention is a vehicle management system having a vehicle and a management center for managing an operation of the vehicle,

wherein the vehicle has the global positioning system of the present invention, the global positioning system has display means for displaying a
15 current position and a destination as represented by the mesh code having a selected number of digits, an itinerary from the current position to the destination, and a map, search means for searching for the itinerary of the vehicle, and for the current position and the destination position using the mesh code having the selected number of digits, input means for entering the
20 destination as represented by the mesh code having the selected number of digits, means for receiving the mesh code transmitted from the management center, transmitting means for transmitting a signal indicative of the current position, and recording means for recording a variety of information including information on the position of the vehicle at each hour, and the management
25 center includes managing means which has means for entering a destination as represented by the mesh code having the selected number of digits, means for

displaying the current position of the vehicle, means for searching for the current

if known, through the direct input means even if information on the mesh code cannot be acquired, such as when the global positioning system cannot receive information from artificial satellites in a room or the like.

[0059]

5 A program of the present invention is a program for causing a computer to execute processing for mutually converting a mesh code for displaying a position in the combination of the block number of a block, the unit number of a unit, and the mesh number of a mesh, wherein a world map is divided into six in the east-west direction along longitudes at intervals of 60
10 degrees, and divided into at least three in the south-north direction along latitudes to define a plurality of numbered blocks, each of the which is divided into 100 in the east-west direction and in the south-north direction, respectively, to define a plurality of numbered units in a square shape, and each of the units is divided into 10^n in the east-west direction and in the north-south direction,
15 respectively, to define a plurality of numbered meshes in a square shape, and for mutually converting respective latitudes and longitudes of new positioning system coordinates and old positioning system coordinates, and coordinate values of X, Y coordinates corresponding to the new positioning system coordinates, and the old positioning system coordinates, respectively. The
20 program causes the computer to execute block number selection processing to find in which of the blocks each of the entered latitude/longitude and the coordinate values are located, unit number selection processing to find in which of the units in the block, found by the block number selection processing, each of the latitude/longitude and the coordinate values are located, mesh
25 number selection processing to find in which of the meshes, in the unit selected by unit number selection processing each of the latitude/longitude and the

coordinate values are located, home position setting processing to identify a position by omitting the unit number and entering only the mesh number when data is entered, mesh code output processing to select and deliver the number of digits required in accordance with an application from among the mesh code
5 composed of the block number, the unit number, and the mesh number, mesh code input processing to enter the mesh code having the number of digits selected in accordance with an application from among the block number, the unit number, and the mesh number, and output processing to calculate and deliver the latitude/longitude, and the coordinate values corresponding to the
10 position represented by the mesh code.

[0060]

As described above, according to the present invention, it is possible to readily convert mutually the mesh code including the N-code, which provides coordinates easy to understand, and convert mutually the coordinates of the
15 old Japan positioning system coordinates and the new positioning system coordinates. Also, since the coordinate conversion module of the present invention can apply the N-code to a geographic information system, a global positioning system, a portable telephone, an image pick-up apparatus, a navigation system, an on-site shooting television camera, and a vehicle
20 management system, they can be improved in convenience.

BRIEF DESCRIPTION OF THE DRAWINGS

[0061]

[Fig. 1]

An N-code based world block diagram which can be applied to a
25 conversion module according to one embodiment of the present invention.

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